

Work Order ID 159215

Wednesday, April 05, 2017 3:39:53 PM

159215

Page 1

Item ID: D2892-1 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Support
Start Date: 4/6/2017 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 4/21/2017 Req'd Qty: 10.00 ***10*** Customer:
Reference: SCHEDULED/U

Approvals: Process Plan: DAS 21 9-89 Date: APR 06 2017 Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2892	B								

100		2.91							
100	HAAS CNC VERTICAL MACHINING #1								
HAAS 1	Memo	3.49							
HAAS CNC vertical machine #1	1-Machine as per Folio FA082 2-Deburr								
						10	Ø		DAS 20 9-89 17-04-10
110	QC2- Inspect parts off machine FAI/FAIB	0.00							
110									
QC	Memo	0.10							
Quality Control						10	Ø		DAS 20 9-89 17-04-10
120	QC8- Inspect parts - second check	0.00							
120									
QC	Memo	0.20							
Quality Control						10	Ø		DAS 14 9-89 17/04/12

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

159215

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N900040100

Setup Start *NS1*

Stop *NS2*

10

Cust Item ID:

Start Date: 4/6/2017 **Start Qty:** 10.00

Required Date: 4/21/2017 **Req'd Qty:** 10.00

10

Customer:

Reference: SCHEDULED/U

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

**Insp.
Stamp**

0.00

130

0.20

HandFXtube

Hand Finishing Crosstubes

Memo

Per note 8 on page 1 of dwg D2892, Prep inner concave surface of support and apply 3M Scotch-Weld as per dwg.
24h of cure time 135285

135285

APR 18 2017

QC3- Inspect Part Finish

0.00

140

0.10

QC

Quality Control

Memo

APR 19 2017

Identify as per dwg & Stock Location:

0.00

170

0.10

Packaging

Packaging

Memo

LOCATION : LG050

APR 19 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

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Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : _____					

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Reference: SCHEDULED/U

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	QC21- Final Inspection - Work Order Release	0.00							
180									
QC	Memo	1.00							
Quality Control									

DAS 21 9-89 APR 20 2017

DAS 21 9-89 APR 20 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Picklist Print

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Page 1

Work Order ID: 159215

159215

Parent Item: D2892-1

D2892-1

Parent Item Name: Support

Start Date: 4/6/2017

Required Date: 4/21/2017

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP C02.11.26Added P/O KJ
IPP D 08.03.19 Re-format EC verified by: DD IPP Rev:E
11.08.04 as per dwg rev.B DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

DSK077		Manufactured	No			110	Each	5.0000	0.5	5		DAS	
DSK077									**	<u>5</u>		20	17-04-09
D2892-1 Turning Detail												9-89	

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
MAT060	5	
145980	5	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause			FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____						
Misidentified	☐	Past Due	☐							

DART AEROSPACE LTD		Work Order: 159215
Description: Ø2.500 Support		Part Number: D2892-1
Inspection Dwg: D2892	Rev: B	Page 1 of 1

FIRST ARTICLE INSPECTION DIMENSION SHEET

				Record Actual Dimensions				
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	5
HAAS Section								
AA	0.115	0.150		.130	.130	.130	.130	.130
AB	0.290	0.310		.300	.300	.300	.300	.300
AC	0.040	0.060		.050	.050	.050	.053	.053
AD	0.115	0.150		.122	.122	.122	.122	.122
AE	0.240	0.260		.248	.248	.248	.248	.250
AF	0.188	0.193		.191	.191	.191	.191	.191
AG	0.240	0.260		.250	.250	.250	.250	.250
AH	1.116	1.156		1.144	1.144	1.142	1.145	1.145
AI	0.454	0.474		.462	.462	.462	.462	.462
AJ	0.240	0.260		.250	.250	.250	.250	.250
AK	0.053	0.073		.063	.063	.063	.063	.063
AL	0.257	0.262		.260	.260	.260	.260	.260
AM	1.663	1.683		1.680	1.680	1.679	1.679	1.678
AN	0.053	0.073		.063	.063	.063	.063	.063
AO	0.022	0.042		.032	.032	.032	.032	.032
AP	2.779	2.789		2.784	2.784	2.784	2.784	2.784
AQ								
AR								
AS								
AT								
Accept/Reject								

Measured by: DAS 20 9-89	Date: 17-04-10
Audited by: DAS 14 9-89	Date: 17/04/12
Preliminary Approval:	Date:

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	
B	08.04.21	Reformat	KJ/JLM	
C	12.01.31	Dwg Rev updated	KJ	
D	13.05.22	Dimensions updated	KJ	

DART AEROSPACE LTD		Work Order:	159215
Description: Ø2.500 Support		Part Number:	D2892-1
Inspection Dwg: D2892		Rev: B	Page 1 of 1

FIRST ARTICLE INSPECTION DIMENSION SHEET

				Record Actual Dimensions				
Dim	Min	Max	Go/No Go Gauge	6	7	8	9	10
HAAS Section								
AA	0.115	0.150		.130	.130	.130	.130	.130
AB	0.290	0.310		.300	.300	.300	.300	.300
AC	0.040	0.060		.053	.053	.052	.052	.052
AD	0.115	0.150		.122	.122	.122	.122	.122
AE	0.240	0.260		.250	.240	.240	.242	.242
AF	0.188	0.193		.191	.191	.191	.191	.191
AG	0.240	0.260		.250	.250	.250	.250	.250
AH	1.116	1.156		1.145	1.146	1.144	1.145	1.144
AI	0.454	0.474		.462	.462	.462	.463	.463
AJ	0.240	0.260		.250	.250	.250	.250	.250
AK	0.053	0.073		.063	.063	.063	.063	.063
AL	0.257	0.262		.260	.260	.260	.260	.260
AM	1.663	1.683		1.678	1.679	1.679	1.679	1.679
AN	0.053	0.073		.063	.063	.063	.063	.063
AO	0.022	0.042		.032	.032	.032	.032	.032
AP	2.779	2.789		2.784	2.784	2.784	2.784	2.784
AQ								
AR								
AS								
AT								
Accept/Reject								

Measured by: **DAS**
20
9-89

Date: 17-04-10

Audited by: **DAS**
14
9-89

Date: 17/04/12

Preliminary Approval:

Date:

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	
B	08.04.21	Reformat	KJ/JLM	
C	12.01.31	Dwg Rev updated	KJ	
D	13.05.22	Dimensions updated	KJ	

NOTES:

1) MATERIAL: 17-4 PH STAINLESS STEEL, H900 OR H925 CONDITION
MIN UTS = 170 KSI (38 HRC)
(REF DART SPEC. D6104)

2) FINISH: NONE

3) TOLERANCES: PER DART QSI 018 (REF. X.XXX = ± 0.010) UNLESS OTHERWISE NOTED

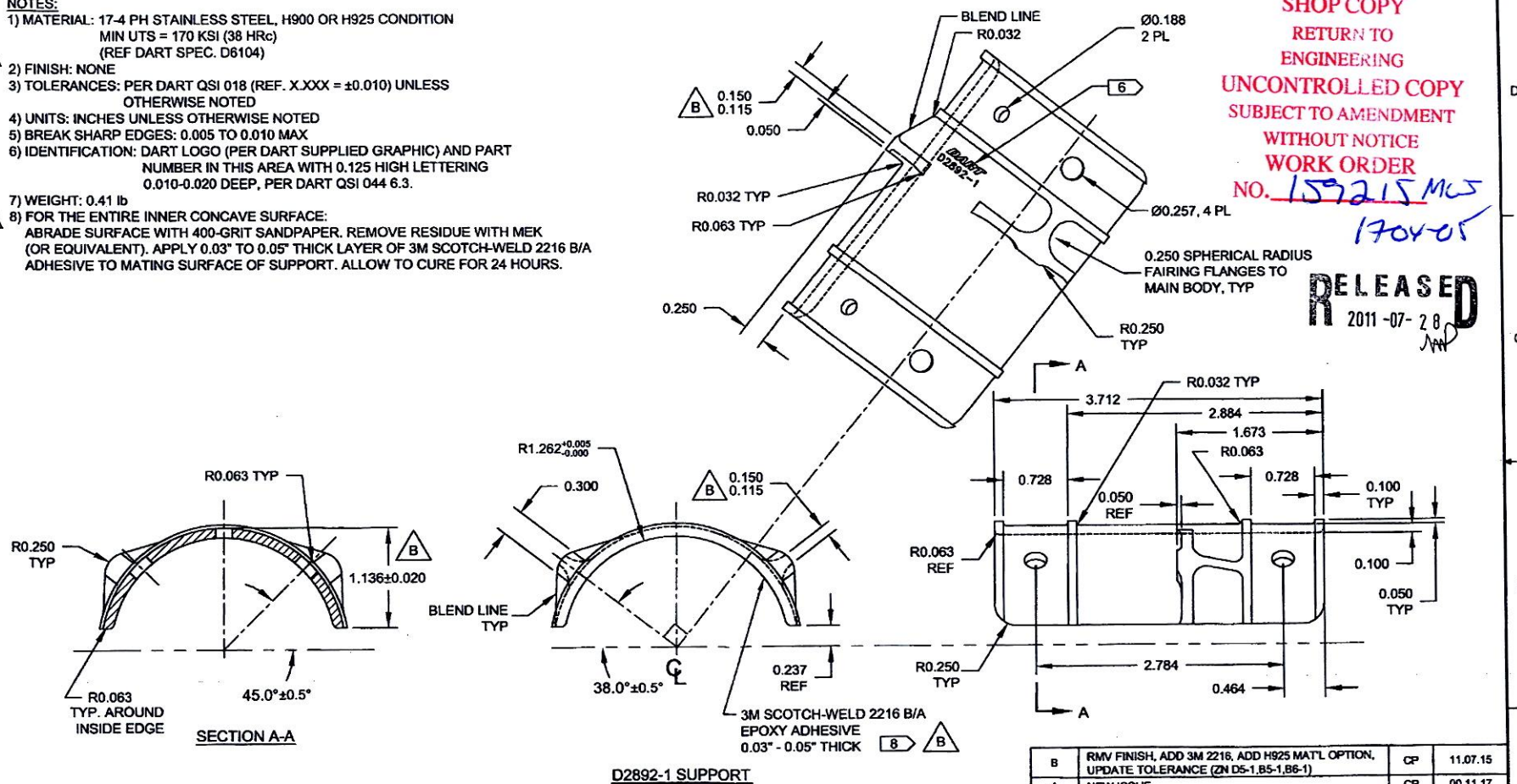
4) UNITS: INCHES UNLESS OTHERWISE NOTED

5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX

6) IDENTIFICATION: DART LOGO (PER DART SUPPLIED GRAPHIC) AND PART NUMBER IN THIS AREA WITH 0.125 HIGH LETTERING
0.010-0.020 DEEP, PER DART QSI 044 6.3.

7) WEIGHT: 0.41 lb

8) FOR THE ENTIRE INNER CONCAVE SURFACE:
ABRADE SURFACE WITH 400-GRIT SANDPAPER. REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY 0.03" TO 0.05" THICK LAYER OF 3M SCOTCH-WELD 2216 B/A ADHESIVE TO MATING SURFACE OF SUPPORT. ALLOW TO CURE FOR 24 HOURS.



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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 159215 MJS
170405

RELEASED
2011-07-28

B	RMV FINISH, ADD 3M 2216, ADD H925 MAT'L OPTION, UPDATE TOLERANCE (ZIN D5-1.B5-1.B6-1)	CP	11.07.15
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	JP		
DRAWN	JP		
CHECKED	AS		
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	11.07.15		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.

D2892

TITLE

Ø2.500 SUPPORT

SCALE

NTS

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